

29  
37  
34

(29)

$$\int \tan(4x+2) dx$$

$$u = 4x+2$$

$$du = 4 dx$$

$$\frac{1}{4} du = dx$$

$$\frac{1}{4} \int \tan u du$$

$$\frac{1}{4} \int \frac{\sin u}{\cos u} du$$

$$v = \cos u$$

$$dv = -\sin u du$$

$$-dv = \sin u du$$

$$-\frac{1}{4} \int \frac{dv}{v}$$

$$= -\frac{1}{4} \ln|v| + C$$

$$= -\frac{1}{4} \ln|\cos u| + C$$

$$= -\frac{1}{4} \ln|\cos(4x+2)| + C$$

$$\int \frac{\sin(4x+2)}{\cos(4x+2)} dx$$

$$u = \cos(4x+2)$$

$$\textcircled{37} \int \frac{\sin(2t+1)}{\cos^2(2t+1)} dt \quad \begin{aligned} u &= 2t+1 \\ du &= 2 dt \\ \frac{1}{2} du &= dt \end{aligned}$$

$$\frac{1}{2} \int \frac{\sin u}{\cos^2(u)} du \rightarrow \frac{1}{2} \int \frac{\sin u}{\cos u} \cdot \frac{1}{\cos u} du$$

$$= \frac{1}{2} \int \tan u \sec u du$$

$$= \frac{1}{2} \sec u + C$$

$$= \frac{1}{2} \sec(2t+1) + C$$

(34)

$$\int \tan^7 \frac{x}{2} \sec^2 \frac{x}{2} dx$$

$$u = \tan \frac{x}{2}$$

$$du = \frac{1}{2} \sec^2 \frac{x}{2} dx$$

$$2 du = \sec^2 \frac{x}{2} dx$$

$$2 \int u^7 du \rightarrow \frac{2}{8} u^8 + C$$

$$\boxed{\frac{1}{4} \tan^8 \frac{x}{2} + C}$$

$$\int \frac{dx}{\cos^2 x} = \int \sec^2(2x) dx$$

$$\int \cot^2(3x) = \int (\csc^2(3x) - 1) dx$$

$$\int \cos^3 x dx = \int \cos^2 x \cos x dx = \int (1 - \sin^2 x) (\cos x) dx \quad u = \sin x$$

Sect. 6.2 #47-66 ( $\frac{1}{2}$ )

Quiz tomorrow

$$(49) \cos 2x = 1 - 2\sin^2 x$$

$$(50) \cos 2x = 2\cos^2 x - 1$$